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EXAMINER	
YUEN, KAN	

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2616	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/802,527	GUERIN ET AL.	
	Examiner	Art Unit	
	Kan Yuen	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *26 October 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15, 17, 22* is/are rejected.

7)☒ Claim(s) *16,18-21,23 and 24* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Response to Arguments

1. Applicant's arguments, see remark pages 8 and 10, filed 10/26/2007, with respect to the rejection(s) of claim(s) 1 and 9 under 102(e) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Callon (Pub No.: 2002/0131362).

Allowable Subject Matters Withdrawal

2. The allowable subject matters for claim 15 issued in the previous office action have been withdrawn.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1 and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Callon (Pub No.: 2002/0131362).

In claim 1, Callon disclosed the method of receiving information corresponding to a first network event that may affect a path for one or more packets traveling in a multi-area routing domain, wherein the path is associated with a destination address (see fig.

2, see paragraph 0030-0032). As shown in fig. 2, there are plurality of autonomous systems 12A-12J, wherein each AS includes at least one router and a routing table including routing destination information. Therefore, the plurality of As's are considered as multi-area routing domain. In the event of a link failure, such as link 8, router 4D may broadcast an update message instructing neighboring AS to with route (12D, 12B) from their routing tables. The failure link 8 is the first network event; maintaining a set of current candidate exit points out of a first area in the domain, wherein the candidate exit points are associated with the destination address (see paragraph 0031-0033). After received of the broadcast message, the routing table of router 4J changes from the original path {12J, 12F, 12D, 12B} to the current candidate path {12J, 12G, 12C, 12B}, wherein the first network area is the AS 12J. The current candidate path maintains exit points in AS 12J; determining whether the first network event caused the path to change and if the first network event caused the path to change, identifying the network event as a cause for the path to change (see paragraph 0035). Unlike a conventional update message that may simply indicate destination 12B is unreachable, the link failure message of the invention uniquely identifies link 8 as a failed link. Therefore, the failed link is the network event that caused for the path to change.

In claim 9, Callon disclosed the method of receiving information corresponding to a first network event that may affect a path for one or more packets traveling in a multi-area routing domain (see fig. 2, see paragraph 0030-0032). As shown in fig. 2, there are plurality of autonomous systems 12A-12J, wherein each AS includes at least one router and a routing table including routing destination information. Therefore, the plurality of

As's are considered as multi-area routing domain. In the event of a link failure, such as link 8, router 4D may broadcast an update message instructing neighboring AS to with route (12D, 12B) from their routing tables. The failure link 8 is the first network event; maintaining a set of current candidate exit points for the path out of a first area (see paragraph 0031-0033). After received of the broadcast message, the routing table of router 4J changes from the original path {12J, 12F, 12D, 12B} to the current candidate path {12J, 12G, 12C, 12B}, wherein the first network area is the AS 12J. The current candidate path maintains exit points in AS 12J; determining whether the first network event is an exit point event; if the first network event is an exit point event, determining whether a set of taken exit points associated with the path has changed in response to the event (paragraph 0035). Unlike a conventional update message that may simply indicate destination 12B is unreachable, the link failure message of the invention uniquely identifies link 8 as a failed link. Therefore, the failed link is the first network event as well as the exit point event that caused for the path to change.

Claim Rejections - 35 USC § 103

5. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 2-8, 10-15, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Callon (Pub No.: 2002/0131362), In view of Cortez et al. (Pat No.: 7130262).

For claim 2, Callon disclosed all the subject matter of the claimed invention with the exception of identifying a set of taken exit points within the set of current candidate exit points and determining whether the set of taken exit points changed after the occurrence of the network event. Cortez et al. from the same or similar fields of endeavor teaches the method of identifying a set of taken exit points within the set of current candidate exit points (see column 4, lines 9-20). To establish an alternative or candidate path, the controllers need to send out restoration weighting information to other nodes, to gain candidate nodes. The candidate nodes is gained based on the restoration weighting factor to meet the requirement of quality of service; and determining whether the set of taken exit points changed after the occurrence of the network event (see column 4, lines 50-67). After the link failure event occurs in the shortest path, the adjacent node of the occurrence event will send out the notification to the node controllers. The node controllers will establish an alternative path. The

alternative path is established based on different factor than the shortest path. Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the method as taught by Cortez et al. in the network of Callon. The motivation for using the method as taught by Cortez et al. in the network of Callon being that the system provides an automated process in search of candidate nodes.

Regarding claim 3, Cortez et al. disclosed the method of maintaining a set of shortest paths associated with the current candidate exit points (see column 3, lines 40-67). The system has the capability to establish a service path, and a restoration or alternative path. A service path is based on the shortest distance from both end nodes. The restoration path is established based on the maximum available capacity of a link; determining whether the set of shortest paths changed after the occurrence of the network event (see column 2, lines 20-45). The restoration path can be changed due to the link failure event, because alternative nodes may be reserved for other path. Therefore the restoration path can be changed due to the occurrence of the failure event.

Regarding claim 4, Cortez et al. also disclosed the method of if the first network event did not cause the path to change, receiving one or more second network events and repeating the determining and generating steps for the one or more second network events (see column 1, lines 32-50). The node will determine if the service or restoration path doe not meet the requirement of QoS, the link will be considered as failure. If the path meets the requirement, it will be considered as a good link.

Regarding claim 5, Cortez et al. also disclosed the method of a node in the first area is identified as a candidate exit point for a path in the area and towards a destination address if the node advertises in the area a longest matching route for the address (see column 3, lines 40-67, and fig. 1). The node controller 16 is considered as the candidate exit point to the end node controller 18, as it indicates the largest or longest route in the shortest path.

Regarding claim 6, Cortez et al. also disclosed the method of a node in the first area is identified as a taken exit point for a path in the area and towards a destination address if the node is a candidate exit point and is the actual exit point from the area used to reach the destination address (see column 3, lines 40-67, and fig. 1) A node which has the maximum available capacity is considered as a qualified node to be a candidate in the restoration path, and therefore is identified as the taken exit point

Regarding claim 7, Cortez et al. also disclosed the method of determining whether the network event comprises shortest path events and exit point events. (see column 4, lines 28-50). The node controller 16 determines the failure link event based on different priorities. Some priorities are maximum available capacity, minimum delay, shortest path, lowest cost, and these priorities can represent shortest path events and exit point event.

Regarding claim 8, Cortez et al. also disclosed the method of network events classified as shortest path events are used to determine if the shortest paths of exit points in the set of candidate exit points have been affected (see column 3, lines 40-67, and see column 4, lines 50-67, and see fig. 1, and see fig. 2). As shown, the node

controllers shown in fig. 1 source nodes 16 and destination node 18, are continuously monitoring events the network. A change of network such as link failure event may cause existing circuit or path to fail. The adjacent nodes of the failure link may quickly identified the path or circuit affected by the failure and send a notification information to nodes involved with the effected path. The link failure event is considered as the first network event; and network events classified as either shortest path events or exit point events are used to determine if the set of taken exit points or their shortest paths have been affected (see column 4, lines 28-67). The node controller 16 determines the failure link event based on different priorities. Some priorities are maximum available capacity, minimum delay, shortest path, lowest cost, and these priorities can represent shortest path events and exit point event. In the case shown in the reference, the link failure event occurs in the shortest path. The failure is determined based on the requirement set in the shortest path.

Regarding claim 10, Cortez et al. also disclosed the method of a node in the first area is identified as a candidate exit point for a path in the area and towards a destination address if the node advertises a longest matching route for the address in the area (see column 3, lines 40-67, and fig. 1). The node controller 16 is considered as the candidate exit point to the end node controller 18, as it indicates the largest or longest route in the shortest path.

Regarding claim 11, Cortez et al. also disclosed the method of a node in the first area is identified as a taken exit point for a path in the area and towards a destination address if the node is a candidate exit point and is the actual exit point from the area on

a minimum total cost path used to reach the destination address (see column 3, lines 40-67, and fig. 1) A node which has the maximum available capacity is considered as a qualified node to be a candidate in the restoration path, and therefore is identified as the taken exit point.

Regarding claim 12, Cortez et al. also disclosed the method of the network event is identified as the root-cause for a path change if either of the determining steps identifies the network event as having affected the set of taken exit points or their shortest paths (see column 4, lines 28-50). The node controller 16 determines the failure link event based on different priorities. Some priorities are maximum available capacity, minimum delay, shortest path, lowest cost, and these priorities can represent shortest path events and exit point event.

Regarding claim 13, Cortez et al. also disclosed the method of establishing if the first network event may affect any shortest path of any exit point in the set of current candidate exit points (see column 3, lines 40-67, and see column 4, lines 50-67, and see fig. 1, and see fig. 2). As shown, the node controllers shown in fig. 1, source nodes 16 and destination node 18, are continuously monitoring events the network. A change of network such as link failure event may cause existing circuit or path to fail. The adjacent nodes of the failure link may quickly identified the path or circuit affected by the failure and send a notification information to nodes involved with the effected path. The link failure event is considered as the first network event; recomputing the shortest paths that may have been affected by the network event (see column 4, lines 50-67, and see fig. 2). After the detection of failure in the shortest path, the controller nodes

quickly identify the path it needs to restore. The node controller, will send a restoration weighting signal in a link 22 for establishing a restoration path to the destination. The restoration path is a new shortest path; comparing the recomputed shortest paths to the original shortest paths to determine whether any shortest paths have changed (see column 1, lines 49-67). The system uses the Dijkstra algorithm to establish service path and restoration path. After the detection of shortest link failure, the system performs the algorithm to establish a new shortest path by comparing the preset value in adjacent nodes of the failure link based on the requirement set for restoration path. The new path will be established, and path is changed based on the algorithm; and determining if the set of exit points taken by the path to exit the area has changed (see column 4, lines 50-67); The node adjacent to the link failure event noticed a change in the network is required. Therefore it needs to identify the circuits or paths affected by this event, and quickly send this information to the nodes that originated the affected circuits.

Regarding claim 14, Cortez et al. also disclosed the method of identifying the first network event as a root-cause for a path change if method identifies the network event as having affected either the set of taken exit points or their shortest paths (see column 4, lines 50-67, and see fig. 2). After the detection of failure in the shortest path, the controller nodes quickly identify the path it needs to restore. The node controller, will send a restoration weighting signal in a link 22 for establishing a restoration path to the destination. The restoration path contains a set of alternative or candidate nodes.

Regarding claim 15, Cortez et al. also disclosed the method of if the network event is classified in a third category, recomputing the shortest paths of all candidate

exit points in the set of candidate exit points (see column 4, lines 50-67, and see fig. 2). After the detection of failure in the shortest path, the controller nodes quickly identify the path it needs to restore. The node controller will send a restoration weighting signal in a link 22 for establishing a restoration path to the destination. The restoration path is a new shortest path, and (see column 1, lines 49-67). The system uses the Dijkstra algorithm to establish service path and restoration path. After the detection of shortest link failure, the system performs the algorithm to establish a new shortest path by comparing the preset value in adjacent nodes of the failure link based on the requirement set for restoration path. The new path will be established, and path is changed based on the algorithm; and.

Regarding claim 17, Cortez et al. also disclosed the method of a network event is classified in the second category if it corresponds to a decrease in the cost of a link in the area (see column 4, lines 28-50). The node controller 16 determines the failure link event based on different priorities. Some priorities are maximum available capacity, minimum delay, shortest path, lowest cost. The lowest cost requirement can be classified as one of the network event.

8. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Callon (Pub No.: 2002/0131362), In view of Cortez et al. (Pat No.: 7130262), as applied to claim 13 above, and further in view of Bauer (Pub No.: 2001/0017845).

For claim 22, Callon and Cortez et al. disclosed all the subject matter of the claimed invention with the exception of determining if the exit point event is a change of

cost for reaching the destination through one of the candidate exit points that affects the selection of taken exit points for the are; identifying if the exit point event corresponds to the advertisement of a best matching route that affects the selection of taken exit points from the area. Bauer from the same or similar fields of endeavor teaches the method of determining if the exit point event is a change of cost for reaching the destination through one of the candidate exit points that affects the selection of taken exit points for the are; identifying if the exit point event corresponds to the advertisement of a best matching route that affects the selection of taken exit points from the area (see paragraph 0015, lines 1-10). The system shows that the link selection is determined based on the cost of a link. Therefore the exit point event is set based on the cost of a link. The lower the cost the better the link. In some case other parameters can implicitly represents the cost parameter, one example is bandwidth, which means the cost and the bandwidth can be considered as changing parameters. The change of cost of each link can be significantly effected in term of link selection. Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the method as taught by Bauer in the network of Callon and Cortez et al. The motivation for using the method as taught by Bauer in the network of Callon and Cortez et al. being that optimal path can be selected based on the capabilities of each node.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kan Yuen whose telephone number is 571-270-1413. The examiner can normally be reached on Monday-Friday 10:00a.m-3:00p.m EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky O. Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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